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Gas Journal

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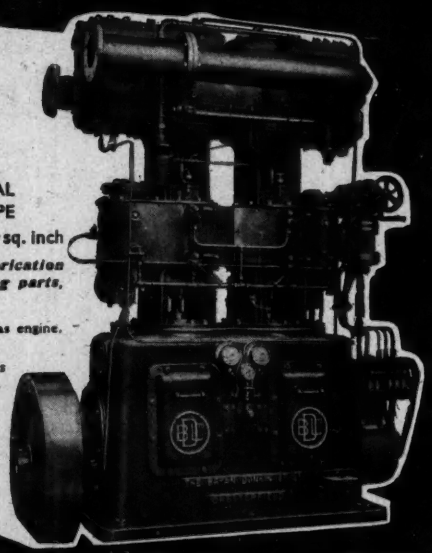

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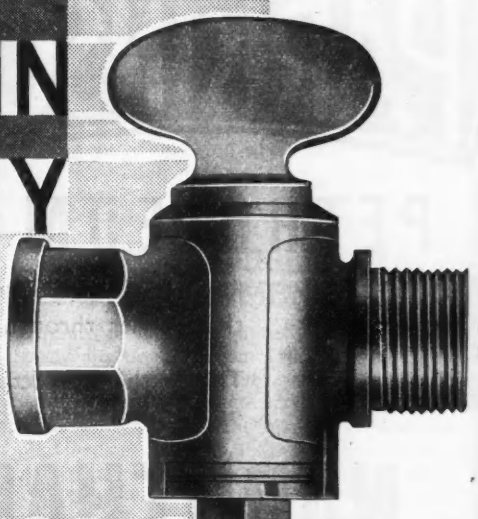

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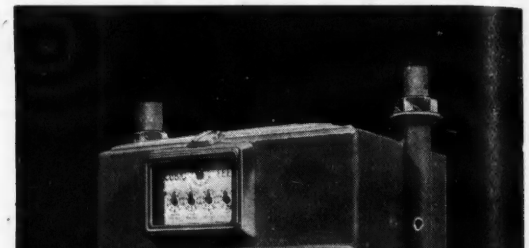

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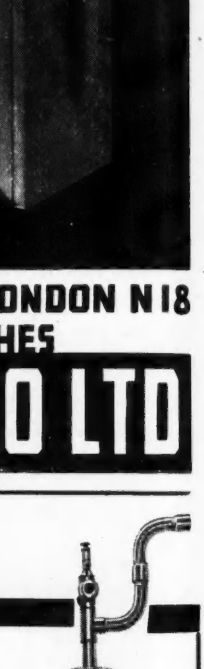

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GAS JOURNAL, MAY 5, 1943
VOL. 241 95th YEAR No. 4172

EDITORIAL NOTES

TOWARDS UNITY

MR. E. V. EVANS, as we have remarked previously, has not allowed the difficulties of wartime travel to interfere with the very full programme he has set himself as Institution President, and his Addresses to the District Associations have been noteworthy in many ways. Perhaps the latest, published elsewhere in this issue, is the most notable of all. Quite apart from the subject-matter for which the North of England Association was the platform, the whole nature of the Address was startling in that it was an open discussion of matters which for many months had been the subject of debate behind closed and well-guarded doors, or committed only to paper heavily marked "secret and confidential." Even though these matters concerned the whole Industry and though, through having of necessity to be discussed in the districts, they were generally known to all but the most somnolent, the atmosphere of secrecy which was officially maintained about them was certainly not the best in which to reach settlement of vital affairs. In fact, as has been the case with so many of the Industry's concerns in the last decade or so, this extreme hush-hush policy has done nothing but engender suspicion, only too frequently where there was no cause at all for it, and it has certainly not contributed in any way to that unity which Mr. Evans and others so strongly desire. Except that we are told that the Gas Industry is "difficult," we can discover no other reason for shrouding in mystery any such matter as the formulation of a new constitution of the national bodies. It is perfectly true that we have our "difficult" members, but they are quite sufficiently in the minority if the rest are united in standing up to them, and in any case they are going to have their say sooner or later. And the remainder, when news reaches them only by hearsay, or when any communication which comes their way is either secret or confidential, receive the impression that matters are being decided far above their heads, and either they lose interest, which is most undesirable, or they, too, join the ranks of the "difficult"—and then matters become, well, still more "difficult," and certainly not more united.

We hope that Mr. Evans' Address marks the beginning of a new era in this respect—an era of more open discussion of matters of general concern, though of course the fulfilment of a national open-handed policy depends in large measure upon open-handedness in the Districts also; and it would be very far from the fact to pretend that the Districts themselves are devoid of the handicaps of cliques, of petty jealousies, and of other obstacles to internal unity. Perhaps, as Mr. Evans said of another aspect of the Industry, the reading of these words would suggest that it is in a sad state. It is quite true that in internal organization it has fallen very far behind its technical achievements, but, perhaps fortunately for itself and for the nation, the stresses of war have given it a fundamental shake-up. If there are various degrees of shakes-up, this one would seem to come into a higher category than, for example, that of 1914–18, for it appears improbable on this occasion that external influences will allow the Industry to shake-down again into the kind of comfort which the ostrich proverbially derives from burying its head in the sand. Now, therefore, that we are all thoroughly roused to the needs of the day, the unity for which Mr. Evans appeals must surely be only just round the corner, and with good will can be caught before it escapes again.

Detailed discussion at this stage of the proposed new constitution outlined by Mr. Evans would seem superfluous. When it was first brought to our notice (can it be nearly a year ago?) it seemed to us that useful and constructive comment might have found its way into our columns—reflecting not necessarily our own views, but those of some of the thinkers in the Industry who have no direct means of making their ideas known. Unfortunately, discussion of the proposals in any shape or form would have entailed a breach of confidence on our part, and for better or for worse the occasion has passed. It still seems to us funny (and we use the word advisedly) that The Chartered Institution of Gas Engineers should be officially represented on the Central Council by four votes. Why not three or five, the uninitiated would surely enquire, if this eminent body must have any voice at all in the control of the Industry? However, knowing the circumstances, we must accept Mr. Evans' explanation that the Institution would rely upon "some" persons who are members of it being elected to the Council, so that technical aspects would be considered adequately. It only remains to hope that such members will not too often be torn between loyalties to technical aspects and to those whom they ultimately represent; nor are we prepared to state offhand a case in which such a contingency might arise. But if the question of the Institution can be dismissed in this way, what are we to say of the suggested representation of the manufacturing side—again featuring the mysterious number four? We wish Mr. Evans could have seen his way to explaining this proposal, because most surely it cannot be intended as any numerical assessment of the value of the assistance which that side of the Industry is willing and qualified to give in its management—qualified by long tradition and by a knowledge of *national* requirements which few gas engineers, from the very nature of their jobs, have the chance to acquire.

Finally, we welcome heartily the prominence which Mr. Evans forecasts for Commercial Development in assigning it to a "board" rather than a mere committee. We firmly believe that this presages a new sphere of usefulness, in keeping with modern requirements, for the old B.C.G.A., whether the new constitution is accepted in the present outline or not. We congratulate those who have had the wisdom to see that the work of a Development Board should comprise very many spheres of important activity; that, for example, salesmanship and advertising are very closely related to methods of charge and the development of utilization appliances. While realizing that the best is possible only by co-ordination of national activities, they have stood out for clear recognition of the importance of Development of this kind with a very capital D, and have won such recognition not, we believe, without a strong measure of opposition.

CONTACT, PUBLICITY, DEVELOPMENT

THE importance of such recognition seems to us to stand out in many directions, and our Industry is not alone in seeing the signs of the times. For example, only last week it was learned that the electricity industry is seeking a director of development who will be that industry's "ambassador" (*vide* Mr. E. E. Hoadley, Chairman of the B.E.D.A., in *The Times* of April 27, whose six points on post-war improvements in the electrical industry are referred to later in these columns). The electrical industry, appreciating the importance of "public relations," is determined to foster such consumer relationship and is equally determined that Government departments concerned shall hear its voice and take note of its proposals. And in the Gas Industry's own new plan we are glad that a Development Board is to occupy no inconspicuous place. We hope that, with its functions clearly defined, it will both work as a co-ordinating and a driving force amid new conditions.

In welcoming the Development Board, we shall have to say good-bye to the B.C.G.A., but we cannot say good-bye to its work over so many years under those familiar initials. There

has been plenty of criticism of this work, which in itself is far removed from an unhealthy sign. At the time of its formation the B.C.G.A. was badly needed, and throughout its existence it has operated to purpose as a necessary functional unit of the Industry. Our Industry, it has been suggested several times by those outside it, has been prone to criticism of its own organizations and its own affairs—almost undue criticism. However that may be—and we ourselves regard such criticism as a search for improvement rather than an admission of weakness—the British Commercial Gas Association has been a source of envy to the electrical industry, whose emulation has constituted flattery. But in welcoming the new designation "Development Board," we must above all guard against the danger of its being a new designation and nothing more. It is undoubtedly a source of great satisfaction that the new body would inherit the ripe experience of the B.C.G.A. in a highly specialized field (we would emphasize this "specialization"). But, while this field of propaganda constitutes a most important part of development, it loses a great deal of its driving force if it stands alone rather than works in the closest contact with many other phases of Gas Industry activity. No doubt, as we have suggested, the work of the Board would be given clear definition and might well be expected to cover, without overlapping, marketing, sales, and service organizations, training and education, publicity, the commercial aspects of utilization, and the women's section. And we take it that the Board, while being given and expected to exercise a considerable degree of independence, would carry out the general policy as approved by the Central Council of the B.G.A. It is obviously desirable that the Board should have strong representation from the manufacturers of appliances.

Let us turn to the report of the B.C.G.A., a summary of which we published in last week's "JOURNAL." It contained, fortunately, ample indication of increased activity—though very greatly restricted and modified, through a variety of causes at once obvious and understandable, compared with activities before the war. However, after a year, in 1940, of what amounted in many directions almost to suspension of activity, the vital need for contact with the Government departments and for assisting the gas-consuming public and the community in general in their wartime problems and difficulties became apparent, and since then, with greatly depleted staff and limited resources, the Association has undoubtedly carried out what we may term "contact work" with conspicuous success in the directions we have mentioned and to the benefit of all concerned. Considering the limitations, the volume of work has been considerable; goodwill has been fostered; the essential nature of the work has, we think, been more clearly appreciated. As we have said, it is to be hoped that under a new constitution, with the translation of the Association into a Development Board, there will be better definition, greater driving force, added momentum, increased scope after the war.

"NEAT GAS" BURNERS

IN the "JOURNAL" last week (p. 518) we reverted to the subject of luminous flame burners, concluding our note by suggesting that post-war the luminous burner is likely to occupy a more honoured place *vis-à-vis* its companion the burner of the bunsen type. At the beginning of our comments on the matter (a question, we think, of considerable significance) we said we used the expression "luminous" for want of a better term. Without going over old ground we will just remark now that the existence of flame without is impossible, and that to consider burners which are not of the bunsen type as being "luminous" in 1943 is not in accordance with fact. If our memory serves us it was in 1885 that Bunsen drilled a hole in a burner tube and designed an injector which entrained a certain amount of air which mixed with the gas prior to its ignition and "burning" at the end of the tube. Discussions and explanation of the mechanism of the bunsen burner, of inner and outer cones, and so on, have filled many thousands of pages of scientific text-books throughout the countries of the world, and we well remember the late Professor Smithell's celebrated lectures on flame separation, his study of which gave him considerable fame. Also we are well aware, as we said last week, that the bunsen burner entirely transformed the art of gas lighting, and caused concentration to be directed on the heating properties as distinct from the intrinsic "luminous" characteristic of gas. But there is no getting away from the fact that entrainment of primary air for the combustion of gas is a complication; and the question we would ask is whether this complication is necessary or justifiable in many of the circumstances of gas usage to-day. Or, to put it in another way, cannot we with advantage burn gas simply at the end of a pipe which has not been drilled in accordance with the bunsen principle? And here we would like to repeat the following from our comments last week: "We are not saying that we should cease to bother about the bunsen burner and its application and turn exclusively to the luminous burner. Far from it. Each type of burner has its appropriate uses, and it is obvious enough that the bunsen burner has stood us in extraordinarily good stead. Our point is that we ought not to neglect, because of this good service and established practice in appliance design, the possibilities of the luminous burner not only for water heating, but also for cooking and space heating and for industrial purposes."

Last week, too, we referred in quite a general way to developments in the application of the so-called luminous burner, though we did mention specifically the work of the South Metropolitan Gas Company and of Radiation Limited in this direction. Others are doubtless actively investigating luminous flames, which for years have been commonplace in the domestic gas water heater. No doubt, when the time is ripe, whenever that may be, we shall be able to throw light on these investigations—and we are of opinion that post-war they will shine for themselves. In the meantime we can talk a bit—with the "bit" not between our teeth—about the simple principle of burning gas scientifically at the end of a pipe. Through the courtesy of the South Metropolitan Gas Company we had last week the opportunity of a glimpse of "things to come." In our last issue, by the way, we mentioned the cooker which Mr. Dean Chandler exhibited in Edinburgh in 1941—a cooker relying on burners of the luminous type. But that was in 1941; nearly two years have passed, and the matter has not been left where it was then. We have now seen in unashamed detail a cooker of new design which we ourselves are precluded from detailing, but which, as its Edinburgh forerunner, obviates the bunsen burner which is so sensitive to fluctuation in gas characteristics and seems to revel in, at odd and inconvenient times, the pastime of "popping-back" and "hissing" and forming blue and indeterminate inner cones. The cooker in question has many features which appeal to us. It is strikingly simple. It challenges accepted thought—notably, thermostatic control. It is clean in its lines and easy to clean. Also it seems to us to misfire, so to speak, on one point. As we cannot detail the cooker, neither can we detail our objections, though we most decidedly have them. What we saw in the laboratories of the South Metropolitan Gas Company, however, was not confined to cooker development on the principle of burning gas simply and effectively at the end of a pipe, which principle seems to us functionally desirable. We saw noiseless radiant fires, flexible and readily adjustable, in all their simplicity thanks to the absence of that bunsen hole of the bunsen burner. There were, as well, numerous examples of industrial applications of the "luminous" flame, too many and too varied for individual description even of the suggestive nature which conscribes our present comments. All very simple, and, it seemed to us, highly effective, exceedingly flexible, and necessitating a minimum of maintenance. We were assured that certain loads, industrial loads of importance, likely to be lost to gas through the operational vagaries of the bunsen burner have been held to customer-satisfaction by the use of the "luminous" flame.

As we have mentioned, in the design of gas fires, Radiation was early in the field not only investigating luminous burners, but in bringing to the market fires applying the principle—a development brought in practice but not in theory to a temporary

halt by the war. And by dint of coincidence last week, from the laboratories of the South Met. in Old Kent Road we found ourselves listening to Dr. Harold Hartley in a talk to the Eastern District of the Southern Association of Gas Engineers about the future of the domestic field for gas. We were not in the least surprised that at the meeting this question of luminous flames should be raised. Dr. Hartley, it seemed to us, was rather non-committal on the matter. He spoke of the desirability of new methods and of new fashions, coupling the luminous burner with change of fashion. We may be quite wrong, but we gained the impression (among many other impressions during his talk, about which more anon) that it would maybe be an advantage if the luminous burner came into fashion for certain purposes. Dr. Hartley did not leave us with the impression that for certain applications the luminous burner is right in principle. And we think that for specific purposes this type of burner *is* right in principle.

However, we seem to be straying from the purport of this particular note, which we have headed " 'Neat Gas' Burners." We have said that "luminous" is a wrong term to apply to the modern method of burning gas at the end of a pipe. So we call attention to a letter from Mr. Dean Chandler, an enthusiast of simplicity in its best sense, which we are glad to publish in our columns to-day. Mr. Chandler not only says that to describe gas burners with orifices from which undiluted gas issues to be combusted at the point of efflux as "luminous" or "non-aerated" is incorrect, but constructively puts forward the neatest of descriptions. In support of his suggestion he quotes Funk and Wagnell. We ourselves prefer the Oxford English Dictionary definition of "neat," so nicely advanced as "of elegant simplicity in form or arrangement." For what, after all, could be, in essence, simpler than burning gas at the end of a pipe? Mr. Chandler asks his friends in the Gas Industry what they think of his expression "neat gas" burners. We shall be happy to publish expressions of what they think about it.

THE DOMESTIC FIELD

AND now a little more about Dr. Hartley's comments on the future of gas in the domestic field. Once again we would emphasize that we are recording first and personal impressions only—impressions wholly open to criticism. We give prominence to his views, which we trust we do not faultily interpret, because we believe him to be among the Industry's thinkers, a scientist of repute and ripe experience in the field of gas appliance design, whose opinions call for more than passing thought. Now Dr. Hartley stressed vigorously that the gas appliance industry is strong technically, that this inherent strength should dissipate any gloom or despondency concerning the future of gas in competition with other fuels, including electricity. There will, he thinks, be competition and plenty of it, and he welcomes it as a spur and incentive to endeavour, believing that gas will be able to face all comers if—and this is the all-important proviso—gas is allied to coke. In brief, gas must in the post-war period rely on coke more than ever before. The success of gas, he argued, will depend on the ability of the Gas Industry to popularize and supply a graded coke of reasonably constant quality, and he added that gas-works coke is the cheapest domestic fuel available and gives a higher thermal efficiency than raw coal while, at the same time, doing away with the social menace of smoke. Let the Gas Industry look to its coke marketing.

Why this insistence on coke? Perhaps we had better cast an eye on what the coal interests are doing, and by coal interests we mean the British Coal Utilization Research Association. How well this Association knows what leeway is to be made up in the efficiency of domestic coal-burning appliances—and the Association is active. "There is such room for improvement in coal-burning equipment that in the future closer competition must be anticipated," said Dr. Hartley—yet public opinion will not continue to permit the polluting of the atmosphere by the use of smoke-producing fuels in the home. Radiation experiments with coke in the open grate show that radiant efficiency can be increased by as much as 20%. Then there is the continuously burning closed stove to consider for space heating, for which efficiencies of about 80% are thought probable and for which a growing demand is anticipated by their manufacturers. Again, the post-war solid fuel cooking appliance will no doubt combine a cooker and water heater and be designed to operate for 24 hours daily. We may take it—this was one of Dr. Hartley's major points—that immediately after the war the solid fuel industry will continue to be directly responsible for the major domestic fuel needs of the community, but gradually the direct use of coal will be replaced by coke and gas. On national grounds—that is, on the basis of the coal employed in the production of the fuel—or even on a mere cost basis, there would be no case at all for the use of electricity for heating services. But, said Dr. Hartley, "the Ministry of Fuel dare not ignore the voting strength of the electrical industry or of the coal industry, and one need expect nothing drastic from the professional politicians."

In spite of all which, we would stress again that Dr. Hartley did not paint a gloomy picture of the future place of gas. He referred to developments which would be made possible by co-operation with the architect and builder, mentioning among other matters modification of fireplace design, modification which in principle would involve a reversion to an older type. He suggested that heating appliances should not be built in, but that the chimney recess should be left open and that the heating appliance, be it intended to operate by coal, coke, or gas, should be designed as an entity which can stand alone within the recess. Heat which normally passes through the back of the fire and is then dissipated would be returned to the room as convected heat. He remarked that if the existing type of gas fire was used in this way its effectiveness could be increased by over 25%. Dr. Hartley had also a good deal to say about the combination of radiant heat with background heating by convection. Overriding all, we think, was his plea that the Gas Industry should decide what services it intends to offer consumers after the war. What does it intend to do? If we decide to stand still, for fear it might not be economic to undertake this or that type of load, then we shall, he insisted, slide downhill.

All Very Pat!

The Chairman of the British Electrical Development Association, in an "interim statement" on after-war policy made last week and duly recorded prominently in the national Press, laid down a six-point programme designed to benefit consumers. He explained that the Association is developing a programme for strengthening its organization to give the industry full assistance in increasing the efficiency of its service to the public in the period of rehabilitation following the war. As part of this programme the Association is seeking a director who will "act as the ambassador of the industry in all matters of supply and utilization affecting 10,500,000 consumers." And he added that directions in which the post-war consumer may expect improvements include: (1) Standardization of voltages, enabling consumers to use their apparatus anywhere; (2) standardization of forms of tariff so that people will understand what they are paying for; (3) easy facilities for hire-purchase of apparatus and maintenance of apparatus by the supply authorities; (4) development of the industrial off-peak load so that industrial consumers can have cheap supplies; (5) service by the industry's experts to help industrial consumers with their technical problems; and (6) increased facilities to the public for advice and guidance from its electricity authorities—"a logical development of the successful wartime policy which the industry, working with the Government, has applied to the food and fuel-saving campaigns." There is nothing startlingly original about these proposals, but the Gas Industry will note particularly the search for an "ambassador," the plan for increased service and "guidance" facilities, and the proposal to develop off-peak loads.

The fact that goods made of raw materials in short supply owing to war conditions are advertised in the "Journal" should not be taken as an indication that they are necessarily available for export.

Personal

Mr. D. MORTON, former Gas Manager at Arbroath, who is on the staff of Messrs. Henry Balfour & Co., Leven, has been appointed Regional Gas Officer for Newcastle under the Ministry of Fuel and Power. Mr. Morton was for ten years Engineer and Manager of the Kinross and Milnathort Gas Light Company, Ltd.

* * *

Mr. J. H. CHAPMAN has been appointed Deputy Engineer to the Swansea Gas Light Company. He was educated at Middlesbrough High School, Coatham Grammar School, and Leeds University; and after his training in the works and offices of Messrs. Ashmore, Benson, Pease & Co., Ltd., of Middlesbrough, he held engineering appointments with the Middlesbrough Gas Department and with the Brentford Gas Company, before entering the services of the Swansea Gas Light Company, as Engineering Assistant in 1924. In 1936–37 Mr. Chapman was President of the South Wales and Monmouthshire Junior Gas Association.

* * *

Mr. A. J. CAMPBELL, Commercial Manager and Secretary of the Wellingborough Gaslight Company, has been elected Chairman of the Urban District Council of Wellingborough.

* * *

Mr. HENRY SHACKLETON, who was Junior Technical Assistant to the Nelson Gas Department from 1928 to 1931, has been appointed Nelson's Assistant Gas Engineer in succession to Mr. S. Lawrence, now Gas Engineer at Ellesmere Port.

Obituary

The death occurred on April 21 of Mr. ALFRED GREGORY, Engineer, Manager, and Secretary of the Harwich Gas & Coke Company, Ltd.

* * *

Mr. PHILLIP R. YOUNG, for 47 years until the beginning of this year superintendent of the gas-fitting department of the Dover Gas Company, died on April 24.

* * *

Mr. E. A. HARLAND, senior foreman fitter for the Whessoe Foundry and Engineering Company, died at Darlington on April 26 at the age of 64. "Ted" Harland had been with the Company for 49 years and was well known to many gas engineers for his skill and character.

Letter to the Editor

"Neat Gas" Burners

DEAR SIR,—The report published in the "JOURNAL" of April 21 through the courtesy of the Severn Valley Gas Corporation, Ltd., and Gas Consolidation, Ltd., on the "Use of Non-Aerated Flames in Gas Appliances," reminds me that the "New World" "Alpine" gas cooker referred to in the report was the first of its kind to which I had fitted non-aerated gas burners in order that Dr. Thomas could test their merits for himself. A number of other different cookers were also fitted with this type of burner, and they too have given satisfaction. I have always held to the opinion that non-aerated gas burners should be used for oven heating, and the evidence provided by Dr. Thomas, I think, supports that view. The practicability of this type of burner for cooker hotplate work has been demonstrated to my satisfaction in my own home, where a cooker with non-aerated hotplate burners is in regular use.

But the real purport of this letter is not to reiterate my views on the advantages of non-aerated burners, but to suggest a more appropriate and distinctive designation for them. It is, I think, generally agreed that to describe gas burners with orifices from which undiluted gas issues to be combusted at the point of efflux as "luminous" or "non-aerated" is incorrect. Would it not be better to name them "Neat-gas" burners? It seems to me this designation clearly indicates that air is not mixed with the gas before combustion.

Funk and Wagnell define "neat" as "undiluted, clean, free from extraneous matter, suited in character to a required purpose." It would appear that "neat-gas" is appropriate for the type of burner which may come into more general use in the post-war period.

I should be interested to hear what my friends in the Gas Industry think of the suggestion.

South Metropolitan Gas Company, Yours faithfully,
709, *Old Kent Road, S.E.* 15. D. CHANDLER.
April 29, 1943.

Cheques were presented recently to Messrs. P. F. Brownridge and W. Walker, members of the Staff, by the Directors of Fletcher, Russell & Co., Ltd. (Radiation Ltd.), Warrington, to commemorate the completion of 50 years' faithful service to the Company.

Useful Ground appears to have been covered at Oxford by the submission to a committee of the City Council of a report in the form of a film. The committee concerned was the special sub-committee which has been set up to report on the redevelopment of St. Ebbe's, and the film they were invited to see was the British Commercial Gas Association's "Kensal House." When the St. Ebbe's area is redeveloped the housing accommodation will have to take the form of flats, and the sub-committee is, of course, anxious to inform itself of the details relating to modern examples of flats designed for the working classes.

1943 "Journal" Directory

Page 12. DOWNHAM MARKET. R. A. Weston, *E. & M., vice* G. B. L. Wilson.
,, 12. PETWORTH AND STORRINGTON. R. B. Gibson, *M., vice* S. F. Gardiner.
,, 12. TROWBRIDGE. G. B. L. Wilson, *E. & M., vice* J. V. Knight.
,, 24. ELLESMERE PORT. S. H. Lawrence, *E. & M., vice* H. W. Dean.
,, 38. KING'S LYNN. R. A. Weston, *E. & M., vice* G. B. L. Wilson.
,, 44. MALDON. S. F. Gardiner, *M., vice* H. A. Hunt.
,, 68. SWAFFHAM. R. A. Weston, *E. & M., vice* G. B. L. Wilson.
,, 70. TIVERTON. F. E. Cox, *E. & M., vice* H. W. Allen.

Diary

May 11.—General Committee of the National Federation of Gas Coke Associations, Gas Industry House, 9.30 a.m. provisionally.
May 11.—Central Executive Board of the National Gas Council, Gas Industry House, 2.15 p.m.
May 17.—London and Counties Coke Association, Gas Industry House. Finance Committee, 11 a.m.; Executive Committee, 11.30 a.m.; Central Committee, 1.30 p.m.
May 24.—Women's Gas Council, Annual Meeting, Gas Industry House, 2.30 p.m. Address by Miss Irene Ward, C.B.E., M.P.
May 27.—Southern Association of Gas Engineers and Managers (Eastern District). C. T. Price, Hampton Court, "A Review of Carbonizing Plant Problems at Hampton Court," illustrated with lantern-slides. Gas Industry House, 2.30 p.m.
June 22.—Southern Association of Gas Engineers and Managers (Eastern District). H. Lesser, South Metropolitan Gas Company, will review the Paper he gave to the main Association on March 26 on "The Beveridge Report, with Special Reference to Pensions and Workmen's Compensation." Gas Industry House, 2.30 p.m.

A Bright and attractive canteen has recently been installed in a large manufacturing concern in the North of England, for which the following items of cooking equipment—all gas heated—were manufactured and supplied by Radiation Ltd.: One Savoy griller, one treble-oven "Chester" and one high efficiency hotplate, one 3-pan fish range, with heavy galvanized hood. Three 21-ft. steam-heated serving counters were also supplied for this canteen, which is able to cater for 250 at a sitting.

Cheltenham "Dig for Victory" Week was graced by a visit from H.M. Queen Mary. An exhibition was held at the Town Hall at which cookery demonstrations were given by Miss Margaret Stewart on a Radiation "New World" cooker. Her Majesty attended and listened to one of the demonstrations, asking various questions. Among those presented was Mr. A. L. Morris, General Manager, Cheltenham and District Gas Company.

An Interesting window display was arranged in the Bradford Corporation Gas Department Showrooms' windows in connexion with the Bradford "Wings for Victory" week. This display has received more than usual favourable comment. One window was devoted to component parts of aeroplanes, bombs, parachutes, dinghys, and included a 1,000 lb. bomb and the major parts of an aeroplane engine. A second was devoted to the display of bakelite model aeroplanes suitably suspended in flying formation, the background of the window being linked up with the film "Wake Island" which was being shown at a local cinema during the week. A set of artistic original water colours of the various types of allied aircraft, painted by a Polish airman, added to the general interest. The remaining window was built up round the "Make do and Mend" Exhibition which was being held simultaneously during the week.

A Net Trading Profit of £12,510 for the year ended Dec. 31, 1942, compared with £5,811 for the previous year, was reported at the 42nd Annual Meeting of Ewart & Son, Ltd., on April 29. In view of the improved position the Directors recommended the payment of a dividend of 4%, less tax, on the Preference Shares on account of the half-year to Dec. 31, 1938. Mr. S. Sanders, who became Chairman last September, said the year's sales showed an increase of nearly 50% on 1941. Speaking of the future, he felt the transition period from war to peacetime conditions might present some difficulties; it was not unlikely that entirely new models, and possibly new products, would have to be designed and put on the market, involving the expenditure of considerable money and energy, if the Company was to retain its position in the industry. Hearty thanks were accorded to the general works manager, the staff, and the employees for their hard work and loyalty during the year.

A UNITED INDUSTRY*

By E. V. EVANS, O.B.E.,

President of The Institution of Gas Engineers

IT may seem strange as President of the Institution that I should speak to you upon such a subject. Yet members of the Institution serving on the Post-War Planning Committee of the British Gas Federation have given much thought upon the nature of the organization which shall unify and focus the decisions of the Industry into one channel.

The training of a gas engineer is such as to allow him to conduct and improve the gas manufacturing process, and to afford efficient technical service to the consumer. When given responsibility he will strive to obtain results that will justify the confidence placed in him. The particular problems associated with the development of his undertaking will require initiative and the application of individual effort. Within reason there must always be sufficient scope for the engineer and for the administrator to carry out his responsibilities in his own particular way. There is, however, a further and, I think, equally important responsibility and that is, he must make his contribution to the development of the Industry as a whole, so that our Industry may perform an increasingly greater rôle in the national economy, in the conservation of our national coal resources, and in providing comfort for our people. He must be prepared to conform to certain minimum standards of efficiency and service. There is nothing to prevent him surpassing these standards, and I assure you there is no suggestion to make the gas engineer of the future a mere automaton. Yet our national effort will be impeded unless we set ourselves standards and see to it that they are maintained. This cannot be done unless we think and act as a coherent Industry.

Now, from what I have said the impression may be left with some, and particularly with those who are unaware of the process thermal efficiencies we obtain to-day and the general excellence of the service we are in the habit of providing, that the Gas Industry is in a sad state. Will those who have gathered such an impression dispel it at once from their minds. We are generally an efficient Industry, treating coal by the best coal-conserving process at present known, but we do not intend to sit and contemplate with satisfaction the position as it existed before the war. We believe that as a result of the war, and of the necessity to use our coal resources wisely, the nation is better able to appreciate the value of the gas-making process in its contribution to the national economy. We intend further to develop and expand our Industry and to collaborate in order that that end may be achieved. The development and expansion of our Industry depend upon a good deal more than technical efficiency and adequate service. Our relations with the Government, with Housing Authorities, with other public services, and with other fuel industries are a few of the many matters that have to be dealt with in a collaborative way. But it is the technical side of our Industry that is our particular responsibility.

I am afraid that in the future, whether or not an undertaking shall remove sulphur, shall extract benzole, shall afford a certain standard of service to the consumer, or shall conform to other agreed standards, will *not* be the decision of a Board of Directors or of a Gas Committee, but will be made obligatory as the result of a carefully considered policy by the Industry itself. It is better that we should do this work than have standards imposed upon us. You will have to be given an opportunity to voice your opinions in the framing of our technical standards. Once these standards have been fixed we must be prepared to apply them.

At the risk of being considered presumptuous I propose to outline to you the recommendations of the Post-War Planning Committee for the unification of our national bodies, and to consider certain developments that may lead to the stabilization and betterment of our Industry. If in so doing I express some personal views and personal interpretations of certain propositions, I wish it to be understood that these views are expressed in order to evoke your thought and interest, and not to commit my colleagues of the Post-War Planning Committee to any definite line of action.

In the proposed structure of the Industry's national bodies the suggestion is that there would be in each of the eleven Districts of the United Kingdom a District General Committee with its appropriate Management Committee. The District General Committee would consist of men experienced in all spheres of our Industry, including Commercial Development. This means that the National Gas Council and the British Commercial Gas Association would become merged.

Each District, on the basis of proportionate representation, would nominate members to a Central Council. This Council would become the Grand Council for the Industry. It would consist of some 38 members nominated from the Districts, together with four persons nominated by The Institution of Gas Engineers and four from the Society of British Gas Industries. The Gas Research Board would have no direct representation but would speak through the Institution. In addition to direct representation by the Institution, it is assumed that the District Committees would nominate to the Central Council some persons who are members of the Institution, and thus the technical aspects of our problems would be considered adequately.

In order to deal with specialized matters the Central Council would appoint committees to advise it. There would be committees to deal with Commercial Development, with Legal and Parliamentary matters, with Finance, and with matters pertaining to Company Undertakings and to Municipal Undertakings.

So important is the matter of Commercial Development that this committee would take the form of a Board and, as far as possible, the Central Council would appoint to that Board members from the Districts specially expert in matters which are at present the responsibility of the British Commercial Gas Association. Technical and scientific subjects would continue to be the responsibility of the Institution, and of its affiliated District Gas Associations and of the Gas Research Board. There should, however, be effective liaison between the District Gas Associations and the District Managing Councils.

I think it is best only to give a bare outline of the suggested structure of the new national body, which is to be called the British Gas Association, but particularly to stress the purpose that it aims to achieve. And the purpose is that its Central Council shall be truly representative of the interests and opinions of the whole national industry, and shall become the mouthpiece of the Industry and achieve that unification of policy which is so essential to our welfare.

Perhaps I may say a word upon the Chairmanship of the Central Council. It would appear to be the majority opinion that the period of office of the Chairman should be limited perhaps to three or five years. I think you will agree that this is a wise procedure, for it would allow of making available to the Industry the skill and experience of men from different spheres of our Industry who are capable of leadership. It would, moreover, permit of making selections from any part of the country and be another step towards national unification. In order to achieve continuity of policy, however, it would be necessary to appoint a permanent General Manager or Director of the Association. The necessity to fill that post adequately by the appointment of a man of outstanding ability and one capable of performing effectively the difficult tasks that would fall to him is a matter of supreme importance.

Now let me return to the technical problems of our Industry. The Gas Engineering Advisory Boards are commencing their work, and in several districts have already got well to work. For the time being these Boards have as their main responsibility the economy of fuel and the provision of mutual help to achieve this end. The hope has been expressed that they should continue to function after the immediate problems have been solved. I will go farther and say that these Boards should undertake as soon as may be possible a scheme of regional technical development—that is, development by mutual help.

Let me amplify this statement. I am sure you do not imagine that the findings of the Committees of Enquiry of The Institution of Gas Engineers and the results of deliberations of the Post-War Planning Technical Committees after acceptance by the Districts will be filed away into the archives of Gas Industry House, and perhaps be adopted by those more progressive undertakings who think it right and proper to do so. If these findings are to be simply pious recommendations, then many of us are sadly wasting our time. The Industry, upon the advice of the Post-War Planning Committee, will lay down agreed standards of efficiency of gas manufacture, standards of service to the consumer, and other standards which must be attained and maintained by all gas undertakings if the Industry is to expand as a national public service. You have heard recently of suggestions of integration within the Industry. In my personal opinion the most pressing reason for integration will arise in those cases where conformity to the required standards cannot be achieved or where the undertaking refuses to conform to agreed standards.

To have spoken in this manner a few years ago would have been considered to be heresy, but to-day I assure you there is a large body of men thinking in this way. My excuse for introducing the subject is to demonstrate how important a rôle the Gas Engineering Advisory Boards may play in affording mutual help to attain and maintain the standards required and in preventing integration and absorption on too wide a scale.

Of course, all this is not going to happen to-morrow morning, and it will require a long time to bring about the modifications required. Yet we must not be dilatory.

It has been generally accepted that the Gas Industry will attend to its own reorganization rather than be organized from without. And I have presumed to indicate to you some of the machinery that may be laid down for effecting this reorganization. While all this constitutes an important part of the picture, there remains another and perhaps equally important part which is in process of being painted. That

* Address to the North of England Gas Managers' Association May 6.

concerns the relation of the Gas Industry to the Ministry of Fuel and Power.

As an Industry we were gratified when the various fuel industries were brought under the control of one Ministry. We were equally gratified when Dr. E. W. Smith and his staff were transferred from the Board of Trade to that Ministry. We had reason to believe, knowing the excellent work that Dr. Smith had done at the Board of Trade, that the difficulties under which we had laboured in the past, difficulties that had often retarded the development of our Industry, would be removed by this wise appointment. Though we do not despair of being able still to deal effectively with the set-back resulting from Dr. Smith's resignation, it is a fact that his resignation was a matter of the greatest disappointment to us. It is, however, most pleasing to know that Dr. Smith is regaining his health and that our Industry will, in time, be able to avail itself of his special knowledge and experience.

That Dr. Smith had resigned was a fact that had to be faced, and two members of the National Gas Council were asked to seek an interview with the Minister of Fuel for the purpose of discussing the situation that had arisen and of placing before him a constructive proposal. It is now probably generally known that the Minister welcomes the formation of a small Committee of the Gas Industry to consult with officials of his Ministry and to advise him. He has suggested that the Gas Industry should appoint five representatives and the selection of these persons is at present being made. The selection is in the hands of the members of the District Managing Committees of the National Gas Council. The Chairman of this Advisory Committee will be chosen from the representatives of the Gas Industry. Members of the Institution serving on the Executive Board of the National Gas Council were prepared to leave the nominations to that Council, believing that, in the natural order of things, among the final nominees there would be adequate technical representation.

The Minister has agreed that the terms of reference of this Advisory Committee shall be wide and comprehensive, and that it should meet regularly and at short intervals in order to ensure the closest co-operation.

Here, then, is the nucleus of a structure which may form the basis of an efficient and effective organization for our Industry. It is not too difficult a task to devise such a plan and, having devised it, to get it accepted by a majority vote of the Industry. But the success of its operation depends entirely upon the *will* to co-operate in the Industry. If we fail in the attempt to co-operate we must not complain if we are made to do so.

The whole matter of co-operation and co-ordination of the Industry is beset with problems—problems that will require the most careful handling. They must be solved as they arise, for important though they will be, their importance is overshadowed by the absolute necessity for the Industry to think and act in unity. It is only when we are able to do this that we can expect to take our proper place in the Britain of the future.

At the school I attended when a boy we had upon the school crest the words "Unitate Fortior," which being literally translated means "By unity stronger." It seemed to find its widest application on the football field and we seldom lost a match.

WHERE DO WE STAND?

By "FUTURIST"

THE following notes have been written at odd intervals since your admirable leader with the above title was published in the "JOURNAL" of March 31. It will be noted that some of the points made have been touched on by others, notably Colonel Bywater, and later by Mr. Herbert Morrison. These notes were in manuscript before either of the addresses referred to were given, and I take this to indicate that my suggestions bear some resemblance to future probabilities.

We may well ask not only "Where do we stand?" but "Where are we going to stand?" and the answer to the latter question cannot be given without first answering the former, and analyzing the weaknesses brought to light in obtaining that answer. The "GAS JOURNAL" is to be congratulated therefore in providing a "round table" in its columns for the discussion of these vital matters by both senior and junior personnel in the Industry. The time is indeed ripe for such free discussion, since the war and resulting post-war problems will produce sweeping changes which, as an Industry, we can only guide to some extent into pre-determined channels. We certainly cannot prevent the changes. It is for the Industry to shape its future now so far as is possible to come most effectively into line with post-war conditions. In this connexion it would be well to bear in mind that the last War dealt a staggering blow to the remnants of feudalistic organization of industry remaining from the Industrial Revolution. This war may be expected to deal a final knock-out blow to these conditions.

General condemnation of the condition of our Industry as it stands to-day and of its past achievements leads nowhere, however, and such an exhibition of dirty linen in the Press undermines the prestige of the Industry as a whole in the eyes of the engineering world. Should the following remarks appear to be at variance with this statement it must be remembered that only a few of the many problems confronting us have been chosen for criticism, and in each case an attempt has been made to put forward constructive proposals. Discussion of current topics in recent months has ranged over so wide a field that the main fundamental issues tend to become obscured, and these notes are submitted in the hope that they will concentrate and clarify thought on some of these issues.

Where, then, do we stand? Having decided that, Where are we going to stand as an Industry in the post-war world? Let us start from this premise:

Coal, the basic raw material for all industry, is a major asset in the natural wealth of the nation. Moreover it is a wasting asset, and must therefore be used as efficiently as possible in the service of the community. Every individual is entitled to share the dividends of service to the consumer earned by the proper utilization of this source of wealth; and these dividends must be made the maximum possible.

Hence, presumably, the Ministry of Fuel and Power.

If this assumption is correct the Ministry has come to stay as a post-war source of control over the supply, distribution, and utilization of coal (apart from its other function in dealing with imported fuels). For this control to be effective in the interests of the nation the Ministry must exercise some control over the industries consuming coal. The logical conclusion is that the Ministry should have power to decide and define the economic fields of operation for each industry concerned, so that wasteful use of the wrong kind of fuel or wasteful competition between two fuels for the same market can be avoided. In simple terms, of every 100 tons of coal mined, A tons are economical gas-making coals, B tons are primarily steam raising, C tons suitable only for use in hot-water installations, domestic and industrial, the balance going to other industries which must have raw coal for process work. The proportions A, B, C, &c., will be decided by many factors, such as the relative economical loads to be met by the gas and electrical industries, the available markets for coal by-products, &c.; and the Ministry will have to decide what these proportions shall be and how they can be allowed to fluctuate, so that the 100 tons shall, at all times, be used to yield the maximum return. Under the present system of ownership and operation of the coal mines and the artificial values of different types of coal created by competition between gas, electricity, and raw coal, no true economic basis of utilization can be established.

With a unified governmental control of the production and utilization of coal as suggested, the conditions may arise when economic factors point to the extension of gas production to supply a remunerative by-product market to a degree where second or third grade gas-making coals are carbonized and electricity produced on gas-works for supply to the electrical grid. This may involve the extension of waste heat recovery of steam for cheap electrical power generation and the utilization of surplus gas to drive prime movers for generation. Further, may not these factors in turn justify a large-scale regional gas grid scheme to make surplus gas available at reasonable rates in isolated areas? A determined investigation into the possibilities of really high pressure gas distribution is thus indicated. These possibilities assume added significance if the implications are considered of a reconstituted and vigorous post-war agricultural policy with the vast extension of housing involved in such a policy. The Gas Industry is justly proud of its service to the consumer. But what new fields are opened here!

We are faced, then, with governmental control in some manner, and I suggest that it is fear of this control, what form it will take, fear that private enterprise will be destroyed and dividends reduced, that has caused something of a panic in the Industry's ranks, and thus failed to produce concrete proposals to meet future developments. This attitude is useless. As an Industry we must endeavour to visualize the probable post-war industrial conditions and changed social structure, and then make our plans to fit in effectively with this new world. We cannot arrest these social changes any more than we can resist the forces of Nature. But *we must plan now* to ensure that our Industry plays a part in the future in keeping with its importance and past traditions. The alternative, as has so frequently been pointed out in your pages, is a scheme forced upon us from outside which may give us a far worse headache in operating it than we are likely to get in thinking out our own method. One thing is certain—we shall not be vouchsafed a position of splendid isolation, and we shall not be allowed to stagnate as the Industry did in the early years of this century.

The second beam in our own eyes is that the majority of the Industry's spokesmen are responsible to boards of directors for their actions and statements. Can we, however, justify the continued existence in post-war conditions of a great public utility service based mainly on private enterprise with relatively little external control? If we answer yes, then the Industry will show a decided lack of imagination in its visualization of the future.

The terms of reference of the recently appointed sub-committee of

the Post-War Planning Committee are precise and to the point, and the recommendations of this sub-committee must, of necessity, be made in the light of the form of government supervision likely to be placed on the Industry. It will be for the P.W.P. Committee, through the negotiating representatives of the Industry, to place proposals before the Ministry of Fuel and Power which will make the final form of control to be applied most suited to efficient working. It is the duty, therefore, of the rank and file of the Industry to assist the sub-committee in any way possible in its arduous task, and to accept its findings as the most effective basis for post-war development.

Domestic Problems

Where do we stand with regard to the domestic problems which will confront us in the future? A few major points may be made here if only to add further opinions to those already expressed.

It is generally agreed that our main problem is the recruitment and training of the right type of personnel entering the higher grades of the Industry. With some 100 years' seniority over the electrical industry we still have only one university in the country attempting to provide a suitable theoretical training for prospective gas engineers, whereas the degree in electrical engineering has for many years taken its place beside the mechanical and civil engineering degrees. If we cannot provide adequate training for entry into the administrative grades of the Industry, how can we expect to attract the right types and the best brains? We have the Institution Education Scheme which, by the nature of its layout, can do little more than produce good junior works superintendents or district supervisors. Of course the reports of the examiners make depressing reading. The candidates are not picked men with the inherent ability to become engineers and managers. They can only receive in the time allotted for the course the vaguest outlines of general engineering fundamentals, and no attempt is made to back their theoretical training with *organized* practical experience on the works. "The general standard of sketching was very poor and candidates did not show a thorough grasp of the principles of design of plant." Of course not, they had had no proper training in machine drawing, and had never had the opportunity to see, much less work on, the plant in question.

A prospective engineer and manager must have a thorough training in the fundamentals of mechanical and civil engineering, on which is superimposed training in the specialized branch of chemical engineering covering gas production and distribution. Added to this, training in works management and administration is essential to the future engineer and manager. At present too many managers are drawn from the accountancy side. In the smaller undertakings particularly, a man with a wide background of technical experience is essential if the undertaking is to be efficient and progressive.

University courses in mechanical and civil engineering take at least three years after matriculation, so that a four-or five-year course is indicated for the necessary training of a gas engineer. There will be few students in the future whose parents would meet the cost of such an extended course of study, and if the Gas Industry wants the best men, it will have to bear part of the cost of training the men. It must also provide from its ranks suitable teachers, and, what is totally lacking at the moment, adequate text-books for use in teaching fundamental theory. This matter will need the co-operation of the contracting side of the Industry, since it is not assumed that all trainees will be absorbed on the production and utilization side. The scheme would, however, produce a steady flow of thoroughly trained men into all branches, and would give a decided impetus to improving efficiency in design and construction of plant and in its operation on the works.

The specialists—*i.e.*, chemists, and mechanical and civil engineers—must be attracted in addition, since the contractors and larger undertakings will need these men to work alongside the gas engineering staff.

And what of practical training? Much discussion on this has taken place recently in other technical institutions and useful information is available. If the principle of extensive and full-time training as outlined above is accepted, then practical experience must be provided before and during the university course, since the student would be too old an completion of the course to commence a further period of works apprenticeship. Excellent schemes on this basis have been in operation for many years in the engineering industry—notably in government controlled establishments. By practical training is meant a properly organized course in the several departments of an undertaking, including the managerial side. For the smaller undertakings it is not economically or practically possible to provide the requisite facilities for a sufficiently wide works experience to be gained. This indicates that the responsibility for training personnel entering the Industry will fall on the larger companies or groups, who will provide the trained personnel which can be absorbed by the Industry. It should not be impossible to devise a method whereby the cost of this scheme could be borne equally by both large and small undertakings.

Such a system of training would prove a sound investment and yield rich dividends in the increased efficiency of the whole Industry. It would contribute more than any other single factor to the raising of our prestige in the eyes of the engineering world and general public alike. Would it not be a sound policy therefore to spend these dividends in the payment of reasonable salaries to the men who would satisfactorily pass this proposed extensive work of training? And, when considering salaries, for heaven's sake don't let us bind ourselves to a rigid scale based on the size of the undertaking. What has that to do with an individual's ability?

The word "education" has been avoided deliberately in the foregoing. One comment need only be made. If the student cannot get himself "educated" from say 14 to 16 during his matriculation period and subsequently during his works practice and university course, then he is not a suitable candidate for entry into the Industry.

What is our present system? Men become managers late in life following slowly in others' footsteps and at an age when their best energies are spent. They have had no opportunity to gain experience of the "business" side, consequently they have to be supported by the clerical and accountancy staff, and they can therefore never be a source of inspiration to the undertaking as a whole. No wonder so many managements never advance with the times. The Provincial undertakings recruit the majority of their staff from the locality or from other small undertakings, and these men never see, therefore, gas production on a large scale with the different system of control involved and plant and operating methods which could not be used in the small unit. Their horizon is limited, and they have no means of getting fresh ideas for the improvement of their own works or district. Conversely the young man trained in the large undertaking tends to become specialized, and seldom has the chance to hold all the threads as does the manager of the small works. One of the best means of producing able gas engineers would be to make them works managers of 4 million cu.ft. per day works from the age of 28 to 33. If at the end of that time they hadn't learnt much about the job and hadn't found the meaning of hard work they could safely be rejected by the Industry.

In the above state of affairs lies the reason for the so-called "schism" between London (with which is implied all the large undertakings) and the Provinces. "What do they know of the Provinces who only the Provinces know?"—and for "Provinces"' may also be read "London." There is a saying in the Industry, "Once you leave the large undertaking (London) you never get back," and it would be equally true to say that the only entry into "London" for the provincial is by the celebrated eye of a needle. And yet the provincial has very often had to take much more responsibility at an earlier age, and has therefore a sounder knowledge of his job than his London counterpart.

A solution to this problem may be found in the interchange of trainees between large and small undertakings during their period of practical and theoretical study. It would produce better gas engineers, and also serve as an integrating force making for increased co-operation in the Industry.

The Small Undertakings

So much for training. A few words now on the small undertakings. The general efficiency of the Industry is the average of the efficiencies of all the component units, and it cannot be denied that this average figure is reduced by the poor standard of many small companies. In the present structure of the Industry they serve an essential purpose in providing a gas supply to isolated areas and, because of this important function, their operation should be a major concern of the leaders of the Industry. At present many are operated with ancient and dilapidated plant and staffed by men with little or no real technical experience. They are owned by the local solicitor, butcher, &c., and in this condition are able to pay very remunerative dividends; but if called upon to provide a better service and to extend their capacity to meet new development, most of them would need to be rebuilt. At the moment many are supplying a gas of doubtful quality and purity with a servicing department comprising one unskilled fitter and a boy—a state of affairs not conducive to raising the Industry's prestige in the eyes of the general public!

What can be done to improve these conditions has been shown by Mr. G. M. Gill in his recent excellent series of articles, particularly the results achieved by his travelling laboratory. To this extent the holding company system has improved the small works taken over, and put technical facilities and capital for adequate replacement and maintenance of plant at the disposal of the small unit. Added to this are the economic advantages of centralized administration, purchasing, and the standardization of equipment and methods. The local solicitor's dividend of 10% may have dropped to 5%, but the service to the public has been vastly improved—and who will deny that this is the paramount concern of the Industry?

A regional scheme as already proposed elsewhere based on the experience of holding companies and coupled with a determined investigation into the economic possibilities of grid distribution systems, even if these are only confined to definite areas, would appear to be a possible solution to this problem. Further, if the regional headquarters were staffed with men trained as outlined above and included specialists in the several branches of the profession, we need have no further doubts of the efficiency and potentialities for development of the Industry as a whole.

The other problems requiring our attention can be touched on only briefly, and many more must be left to others.

The multiplicity of committees, &c., controlling the Industry makes for overlapping of functions and lack of co-ordination.

The Junior Associations should be more closely identified as branches of the parent body—the Institution—and more encouragement and opportunity for co-operation given to the Juniors. A comparison between the Transactions—particularly the discussions—of the Senior and Junior Associations is a revealing occupation.

Why do we persist with the co-partnership system—a system rejected as a failure by nearly all other industries? A few enquiries from the main body of labour in our Industry would soon convince the questioner that the value of co-partnership as an incentive is *nil*. The rewards are not sufficiently tangible, and the aim of many managements to reach 100% membership leads to abuses of the system and puts the Industry in an unfavourable position in the labour market. A direct bonus system based on output, profits, or cost of production would serve us better.

The attitude of many managements to the Trade Union movement must be modified. The unions as the negotiating bodies for labour with management will play an important part in the post-war world, whatever our views are on their merits. Realization of this will lead to more effective co-operation between men and manager.

Many aspects of these and other problems can be presented with advantage at the present time by those concerned with the best interests of the Industry, and they will no doubt find a proffered chair at your "round table" in these pages.

Coke Discharge Seals for Vertical Retorts

Among new patents is one (No. 550,900; application date Oct. 29, 1941) granted to Woodall-Duckham (1920), Ltd., and G. J. Jackson. It relates to improvements in liquid-sealed closures for vertical retorts. and concerns an improvement in the known type which comprises a liquid-containing member pivoted for movement about a horizontal axis and co-acting with the mouthpiece of the retort, the lower edge of the mouthpiece normally dipping into the liquid held in this member. The mouthpiece contains a plate hinged horizontally at one side to the mouthpiece, the other side of the plate resting on the inner curved surface of the liquid-containing member. The plate normally occupies a slightly inclined position in the mouthpiece. This plate serves to support the coke within the mouthpiece above the surface of the sealing liquid. As the liquid-containing member is rotated on its axis to uncover the outlet of the mouthpiece, the hinged plate also turns about its hinge to an approximately vertical position and allows the material to fall out through. Movement of the liquid-containing member in the opposite direction raises the hinged plate to its inclined position, and brings the liquid-containing member back into a position where the liquid seals the opening of the mouthpiece.

Two forms of such a seal are known. In the first the liquid-container is a simple dish-like member, and its rotation to an inclined position to uncover the mouthpiece spills out the water. Consequently, the container must be refilled after each opening, while in addition the spillage of the water wets the coke and does not conduce to cleanliness and convenience. The other known form is that of Patent No. 159,108. In this device the liquid-containing member has an extension on one side which forms a pocket into which the liquid drains as the member is rotated, and the liquid is retained while the outlet is uncovered, the liquid running back from the pocket into the curved portion of the member as the latter returns to its position beneath the mouthpiece. Spillage of the liquid is thereby avoided. This arrangement has certain advantages, but is subject to the disadvantage that dirt, small coke, &c., carried into the pocket by the liquid tends to collect there, and gradually fills up the space, so that the liquid finally spills over. The pocket must therefore be cleaned out frequently or it becomes useless.

According to the present invention the liquid-containing member is so supported that it can be moved parallel to itself to a position below and to one side of the opening of the mouthpiece, and back, without tilting, thereby avoiding spillage of the liquid. The liquid-containing member is suspended by two sets of parallel links pivoted to the mouthpiece and to the sides of the member. The movement of the member from the scaling to the open position and back again is effected by an arm pivoted at one end to one of the links, while the other end of the arm is connected to a crank on the shaft of a hand-wheel, the end of the arm being bent near its connexion to the crank. Thus in the open and closed positions of the liquid-containing member the crank is just past dead-centre, and the member is consequently locked automatically in both the open and closed positions. A counterweight may be provided, attached to the crank or other portion of the operating mechanism, in order to counter-balance wholly or partially the weight of the moving parts of the closure.

In an alternative arrangement a counterweight is attached to an extension of one of each pair of the supporting links of the liquid-containing member, to facilitate the movement of the container and to assist in holding it in the closed position against the weight of the super-incumbent material on the hinged plate, acting on the inner surface of the liquid-containing member. One of the links is preferably extended below the member to form an operating handle.

As the liquid-containing member always moves so that its edges remain horizontal, spillage of the sealing-liquid is avoided, the construction of the device is simplified, and a deeper and more effective seal can also be obtained when this is desired. The device needs less frequent cleaning and this operation, when necessary, is a simpler and cleaner one.

Water Heaters

According to a patent (No. 550,528; application date, June 11, 1941) taken out by Ascot Gas Water Heaters, Ltd., and L. Friedman, a water heater is provided with a heat exchanger so arranged that the water layer flowing over the surface of the exchanger is of constant or substantially constant thickness throughout the height of the exchanger. The effective circumference or area of the heat exchanger decreases towards the bottom, the water flowing down over the inner surface of the exchanger. The latter may be in the form of an inverted hollow cone or of a hollow body, the effective circumference of which is decreased towards the bottom by providing the wall of the body with a series of slots or perforations. Or it may be in the form of a curved wall or plate suitably slotted to decrease the effective area as desired. Since the burner or other heating element is located at the bottom of the exchanger it is sometimes preferable to increase the thickness of the water layer towards the bottom of the exchanger, and this can be effected by further decreasing the horizontal cross-section of the exchanger towards the bottom. In such a case the heat exchanger may be in the form of an inverted cone, a substantial part thereof being formed as a hyperbola of revolution, or by the revolution of any curve which has the effect of decreasing the circumference towards the base in proportion to the desired increase of the thickness of the water layer towards the base.

One form of apparatus comprises an outer shell having a gas burner arranged at the bottom and a heat exchanger mounted therein consisting of a hollow metal body in the form of an inverted cone, the upper end being open and the lower end closed, a substantial part of the cone being formed as a hyperbola of revolution so that its vertical cross-section is a hyperbola while the lower end is more rapidly decreased in cross-section. The sides of the cone may be perforated or slotted and provided with baffles if desired and the water supply is arranged at the top of the exchanger, and the water flows down over the inner wall of the exchanger and collects at the bottom, where it is discharged through a pipe. The gas burner is arranged to pass the heated gases up around the outside of the exchanger when they pass through the perforations in the sides of the exchanger and out through a flue arranged at the top of the shell.

A Series of Easter Cookery Demonstrations given by the Leamington Priors Gas Company introduced a "Recipe Corner" at the Gas Showrooms, where ladies could consult at their leisure recipes provided by the Ministry of Food and the British Commercial Gas Association, and other bodies. Recipe Corner is an extension of the Gas Company's Advice Bureau.

An installation of Radiation appliances in a large Works Canteen.

Gas Products Prices

The London Market May 3.

All Coal Tar Products are in good demand, and Pitch in the London area remains about 45s.

The Provinces May 3.

The average prices of gas-works products during the week were: Pitch and Crude Tar,* Toluole, naked, North, 90's, 1s. 10d., pure, 2s. 5d. (controlled by the Control of Toluene No. 2 Order, July 3, 1941, which fixes the maximum price at which this material may be sold). Naphtha and Xylol controlled by the Coal Tar, Naphtha, and Xylol Order, 1942, dated Dec. 7, 1942, and operative from Dec. 21. Carbolic acid, 60's, naphthalene, and anthracene controlled by the Coal Tar Products Prices Order S. R. & O. 2509, dated Dec. 7, 1942, and operative from Jan. 1, 1943. Filtered heavy oil (min. gr. 1,080), 7½d. to 8d. Creosote oil has been generally controlled as to direction and price for some time past. Current value—fuel grades 5d. to 5¼d.; timber preservation and other purposes 4⅝d. to 6d.

* In regard to pitch and crude tar prices we would ask readers to refer to the editorial note on p. 396 of the "JOURNAL" for Sept. 10, 1941.

Tar Products in Scotland May 1.

Market continues active at previous prices. Refined tar controlled. Value is 4½d. per gallon *ex* Works, naked. Creosote oil: Specification oil, 6½d. to 7d.; low gravity, 7¼d. to 7½d.; neutral oil, 6d. to 6½d.; hydrogenation oil, 5⅞d. per gallon; all *ex* Works in bulk. Refined cresylic acid continues in good call at 3s. 6d. to 4s. 6d. per gallon *ex* Works, naked, according to quality. Crude naphtha: 6½d. to 7d. per gallon. Solvent naphtha: Basic prices delivered in bulk, 90/160 grade 2s. 8d., and 90/190 Heavy naphtha, Unrectified, 1s. 10½d.; Rectified, 2s. 3d. per gallon. Pyridine: 90/160 grade, 13s., and 90/140 grade, 15s. per gallon.

TRADE CARDS

FULL particulars of these spaces can be obtained on application to the Publishers. They are designed principally for the use of the firms whose display advertisements cannot be included owing to paper rationing.

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Miles Platting, Manchester 10. T/N Collyhurst 2961 (5 lines). T/A Stoker, Manchester. London Office: Columbia House, Aldwych, W.C.2. T/N Holborn 4108-9. T/A Wesgascoe Estrand.
WEST'S CARBONIZING PLANTS.
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GOODALL, CLAYTON CO. LTD.
Leeds.
Conveyors, Elevators, Bunkers, Roofs, Hoists, &c., Coal & Coke Screening and Sizing Plants, Retort Settings, Producers, Furnaces, Repairs.

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(formerly of 37, Tabernacle Street, London, E.C. 2)
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GAS STOCKS AND SHARES

Markets opened after the holiday under quiet conditions although prices generally continued firm. Towards the close short-dated British Funds strengthened and Burma and Mexican Eagle Oil shares were well supported.

There was a comparatively small volume of business in gas stocks and shares and all quotations were maintained, while price changes were on a smaller scale than for some time past. During the month of April 35 issues were marked up, the feature being the sharp rise of 13 points in Portsmouth consolidated, while two only reacted slightly. Oriental stock was marked *ex div.* last week, the interim of 3½% again being paid. Among the ordinary stocks available at the time of writing is a parcel of £4,000 Croydon sliding scale on offer at 126 to yield 4⅛%, and £848 of the Company's 5% maximum stock at 105 gives a similar return. There is also £1,000 of Ipswich gas stock at 108 to yield £5 2s. 6d. % on the last rate of dividend paid—viz., 5½%.

The following changes in price were recorded during the week:

OFFICIAL LIST

Associated Gas & Water Deferred...	19/3—20/3	+-/3d.
Oriental, Ltd. (x.d.)	102—107	Apr. 27
Severn Valley 4½ p.c. Cum. Pref.	18/—20/-	+-/6d

SUPPLEMENTARY LIST

Brighton 5 p.c. Deb.	120—125	+3

Quotations on the London and Provincial Stock Exchanges

OFFICIAL LIST

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations April 29
1,767,439	Sept. 7	5	5	Alliance & Dublin Ord. ...	83—88
374 000	Dec. 28	4	4	Do. 4 p.c. Deb.	95—100
583,407	Nov. 9	5	5	Ascd. Gas & Water U'd'ts Ord.	19/—20/-
388,938	,,	—	—	Do. Deferred	19/3—20/3
500.000	,,	4½	4½	Do. 4½ p.c. Red. Cum. Pref.	19/—20/-
535,545	,,	4	4	Do. 4 p.c. Red. Cum Pref.	19/6—20/6
341,966	,,	4	4	Do. 4 p.c. Irred. Cum. Pref.	17/—18/-
561,370	Feb. 22	7	7	Barnet Ord. 7 p.c. ,, ...	152—157
300,000	Oct. 5	1/9⅜	1/4⅜	Bombay, Ltd.	22/6—23/6
690,407	Feb. 15	7	7	Bournemouth 7 p.c.max. ...	137—142
362,025	Dec. 14	4	4	Do. 4 p.c. Deb. ...	105—110
659,955	March 15	2½	2½	Brighton, &c., 5 p.c. Con. ...	81—86
855,000	,,	6	6	Brit. Gas Light Ord.	102—107
545,000	Dec. 21	5½	5½	Do. 5½ p.c. 'B' Cum. Pref.	110—115
120,000	,, 14	4	4	Do. 4 p.c. Red. Deb.	92—97
10,000	Nov. 6 '33	6	4	Cape Town, Ltd., 4½ p.c. Cu. Pf.	40/—60/-
626,860	Feb. 8	6	6	Cardiff Con. Ord.	102—107
24,500	Oct. 26	7	7	Colombo 7 p.c. Pref.	21/—23/-
764,169	March 22	-/9.56	-/9.56	Colonial Gas Assn. Ltd. Ord. ...	⅛—⅛
400,000	,,	1/3.298	1/3.298	Do 8 p.c. Pref. ...	⅛—⅛
1,748,090	July 22 '40	2	3	Commercial Ord.	57—62
620,000	Dec. 7	3	3	Do. 3 p.c. Deb.	60—65
286,344	Feb. 15	5	5	Do. 5 p.c. Deb.	105—110
807,560	,, 22	6	6	Croydon sliding scale	121—126
644,590	,,	5	5	Do. max. div. ...	100—105
620,385	Dec. 28	5	5	Do. 5 p.c. Perp. Deb. ...	122—127
179,500	Feb. 22	5	5	East Surrey 'B,' 5 p.c.	85—90
176,461	Dec. 28	5	5	Do. 5 p.c. Deb. (Irred.)...	122—127
250,000	Nov. 9	6	4	Gas Consolidation Ord. 'B' ...	16/6—18/6
250,000	,,	4	4	Do. 4 p.c. Red. Cum. Pref.	18/—20/-
19.107,811	Feb. 15	—	†1	Gas Light & Coke Ord.	16/—17/-a
2,600,000	,,	—	†1½	Do. 3½ p.c. max.	66—69
4,477,106	,,	4	4	Do. 4 p.c. Con. Pref. ...	90—95
2,993,000	,,	3½	3½	Do. 3½ p.c. Red. Pref. ...	90—95
8,602,497	Nov 30	3	3	Do. 3 p.c. Con. Deb. ...	86—89
3,642,770	,,	5	5	Do. 5 p.c. Red. Deb. ...	106—110
3,500,000	,,	4½	4½	Do. 4½ p.c. Red. Deb. ...	105—109
700,000	March 8	3½	3½	Do. 3½ Red. Deb. ...	95—98
5,600,000	May 13 '40	4	8	Imperial Continental Cap. ...	80—83
43,820	Jan. 25	3½	3½	Do. 3½ p.c. Red. Deb. ...	95—100
231,978	Feb. 22	5	5	M.S. Utility 'C' Cons.	90—95
918,657	,,	4	4	4 p.c. Cons. Pref.	90—95
675,000	Nov. 16	‡4	‡4	Montevideo, Ltd. ,, ...	95—100
300,000	April 27	9	7	Oriental, Ltd.	102—107
368,537	June 15	3½	2½†	Plymouth & Stonehouse 5 p.c.	77—82
621,667	Feb. 8	5 7½	7½	Portsmouth & Gosport Cons.	118—123
2,381,363	May 18	—	4†	Primitiva Holdings, Ltd. Ord.	12/6—14/6
233,900	Dec. 14	3½	3½	Do. 6½ p.c. Red. Cum. Pref.	96—101
648,999	Sept. 7	1/1½	1/1½	Severn Val. Gas Cor. Ld. Ord.	18/6—20/6
597,972	March 8	4½	4½	Do. 4½ p.c. Cum. Pref. ...	18/—20/-
2,528,714	Aug. 24	1/-	7½	South East'n Gas Cn. Ld. Ord.	18/—19/-
1,000,000	March 1	-/10½	-/10½	Do. 4½ p.c. Red. Cum. Pref.	18/0—20/-
1,068,869	,,	4	4	Do 4 p.c. Irred. Cum. Pref.	17/—19/-
6,709,895	Feb. 22	—	†1	South Met. Ord.	73—76
1,135,812	,,	—	†6	Do. 6 p.c. Irred. Pref. ...	125—130
850,000	,,	—	†4	Do. 4 p.c. Irred. Pref. ...	89—94
1,895,445	Dec. 28	3	3	Do. 3 p.c. Perp. Deb. ...	83—88
1,000,000	Jan. 11	5	5	Do. 5 p.c. Red. Deb. ...	103—108
1,843,795	Feb. 8	4	4	South Suburban Ord, 5 p.c ...	95—100
512,825	,,	5	5	Do. 5 p.c. Perp. Pref. ...	105—110
500,000	,,	4	4	Do. 4 p.c. Perp. Pref. ...	85—90
250,000	,,	3½	3½	Do. 3½ p.c. Red. Pref. ...	90—95
888,587	Dec. 14	3	5	Do. 5 p.c. Perp. Deb. ...	122—127
750,541	Feb. 8	2	6	Southampton Ord.	78—83
350,000	,, 15	5½	5½	Swansea 5½ p.c. Red. Pref. ...	95—100
1,076,495	March 1	5	5	Tottenham & District Ord. ...	103—108
338,555	,,	5	5	Do. 5 p.c. Pref.	105—110
453,380	Dec. 7	4	4	Do. 4 p.c. Perp. Deb. ...	100—105
1,247,505	Nov. 9	6	4	U. Kingdom Gas Cor. Ord. ...	19/3—20/3
1,085,952	Nov. 16	4½	4½	Do. 4½ p.c. 1st Cum. Pref. ...	18/6—20/6
772,709	,,	4	4	Do. 4 p.c. 1st Red. Cum.Pref.	18/6—20/6
745,263	Dec. 14	4½	4½	Do. 4½ p.c. 2nd Non.Cum. Pf.	17/—19/-
1,200,000	March 15	3½	3½	Do. 3½ p.c. Red. Deb. ...	95—100
380,606	Aug. 24	6¾	6¾	Uxbridge, &c., 5 p.c.	113—118
1,371,138	Jan. 25	4	6	Wandsworth Consolidated ...	104—109
2,525,768	,,	4	4	Do. 4 p.c. Pref.	90—95
1,343,964	Dec. 14	5	5	Do. 5 p.c. Deb.	122—127
383,745	,,	4	4	Do. 4 p.c. Deb.	98—103
558,342	Feb. 22	5	5	Watford & St. Albans Ord. ...	108—113
300,000	Dec. 7	3½	3½	Do. 3½ p.c. Red. Deb. ...	90—95

SUPPLEMENTARY LIST

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations April 29
351,685	Dec. 14	5	5	Brighton, &c., 5 p.c. Perp. Deb.	120—125
415,250		4	4	Bristol Gas Co., 4 p.c. New Deb.	100—105
140,205	Feb. ,, 15	7	7	Cambridge, &c., 7 p.c. Cons. 'B'	135—140
295,932	March 8	5	5	Cheltenham, 5 p.c. Cons .Ord....	95—100
42,500	Dec. 14	4	4	Do. 4 p.c. Perp. Deb....	95—100
150,000	Feb. 22	4	4	Croydon Gas, 4 p.c. Pref. (Irr.)	85—90
130,000	Dec. 28	4	4	Do. 4 p.c. Deb. ...	100—105
146,700	Feb. 22	5½	5½	East Surrey, 5½ p.c. Pref. 'A' ...	105—110
53,220	,, 9	6	6	Do. 6 p.c. Cum. Pref. ...	115—120
	Aug. 19 '40	6	4	Eastbourne, 'B' 3½ p.c.... ...	42—47
117,425	Feb. 5 '40	8	8	East Wight Cons. 5 p.c. ...	65—70
239,135	Nov. 9	5	5	Gas Consolidation 'A' Ord. (£1)	15-/—17/-
156,600	Feb. 15	5	5	Hampton C't, 5 p.c. Cons. Ord.	95 -100
18,000	Dec. 29'41	3½	3½	Malta & Med'n., 7 p.c. 1st Pref.	30—40
10,845	June 30'41	3½	3½	Do. 7½ p.c. 2nd Pref.	30—40
50,000	Feb. 22	£5 4 6	£5 4 6	Mid. South. Util., 'A' Cons. 5 p.c.	80—85
65,000	,,	5	5	North Middlesex, 5 p.c. Pref....	95—100
70,000	March 15	5	5	Plymouth & Stone., 5 p.c. Deb.	110—115
76,501	Dec. 21	4	4	Reading, 4 p.c. Perp. Deb. ...	95 -100
74,777	March 31	4	4	Romford, 4 p.c. Debs. (Reg.) ...	95—100
21,000	Dec. 7	5	5	Slough, 5 p.c. Perp. Deb. ...	120—125
211,740	,, 14	5	5	Southampton, 5 p.c. Red. Deb.	103—108
363,575	Jan. 4	5	5	Tottenham, 5 p.c. Reg. Red. Mt.	99—102
202,019	Aug. 24	7⅜	7⅜	Tunbridge Wells, 4 p.c. Scale ...	118—123
135,257	Dec. 7	5	5	Uxbridge &c., 5 p.c. Perp. Deb.	122—127

PROVINCIAL EXCHANGES

					Quotations April 23.
804,948	March 1	5	5	Bath Cons.	100—103
122,577	,, 8	5	7	Blyth 5 p.c. Ord.	108—110
1,667,250	Feb. 15	5	5	Bristol, 5 p.c. max.	112½—114½
120,420	Dec. 14	4	4	Do. 1st 4 p.c. Deb.	101½—103½
415,250	,,	4	4	Do. 2nd 4 p.c. Deb.	101½—103½
328,790	,,	5	5	Do. 5 p.c. Deb.	112—117
157,150	Feb. 1	5	6½	Chester 5 p.c. Ord.	98—102
92,500	Dec. 14	4	4	Do. 4 p.c. Pref.	79—81
36,430	,,	3½	3½	Do. 3½ p.c. Deb.	78—82
41,890	,,	4	4	Do. 4 p.c. Red. Deb.	98—100
542,270	Feb. 8	9	6	Derby Cons.	122—127
55,000	Dec. 14	4	4	Do. 4 p.c. Deb.	95—100
10,000	Feb. 22	10	10	Great Grimsby 'A' Ord.	155—165
6,500	,,	10	10	Do. 'B' Ord.	155—165
79,000	,,	10	10	Do. 'C' Ord.	145—155
732,000	Feb. 15	4	4	Hartlepool G. & W. Cn. & New	83—85
2,167,410	,, 22	5	5	Liverpool 5 p.c. Ord.	105½—106½
245,500	Dec. 21	5	5	Do. 5 p.c. Red. Pref. ...	100—104
306,083	Jan. 18	4	4	Do. 4 p.c. Deb.	100—102
20,000	June 22	5	5	Long Eaton 5 p.c. Pref.	9—11
80,000	,,	5	5	Do. 5 p.c. Deb.	95—100
2,430,267	Feb. 8	5½	5½	Newcastle and Gateshead Con.	23/—23/6a
682,856	,,	4	4	Do. 4 p.c. Pref.	95½—96½
776,706	Dec. 28	3½	3½	Do. 3½ p.c. Deb.	96½—97½
277,285	April 27	5	5	Do. 5 p.c. Deb. '43	99—101
13,200	Sept. 16	8⅜	7	Pontyp'l Gas & W. 10 p.c. 'A'	11½—12½
13,600	,,	6	5	Do. 7 p.c. 'B'	9½—10½
40,000	,,	5	6	Do. 7 p.c. 'C'	9½—10½
106,280	Feb. 8	10	10	Preston 'A' 10 p.c.	150—160
188,219	,,	7	7	Do. 'B' 7 p.c.	109—119
1,806,339	,, 22	6½	6½	Sheffield Cons.	129—132
95,000	Jan. 4	4	4	Do. 4 p.c. Deb.	98—100
332,351	Feb. 22	6	6	Sunderland 6 p.c. max. ...	114—116
192,150	,, 8	5	5	Weston-super-Mare Cons. ...	99—101
64,338	Jan. 4	4	4	Do. 4 p.c. Deb.	99—101
33,340	,,	7½	7½	Do. 7½ p.c. Deb.	142—147

a—The quotation is per £1 of Stock. * Ex. div. † For year. ‡ Paid free of income-tax.